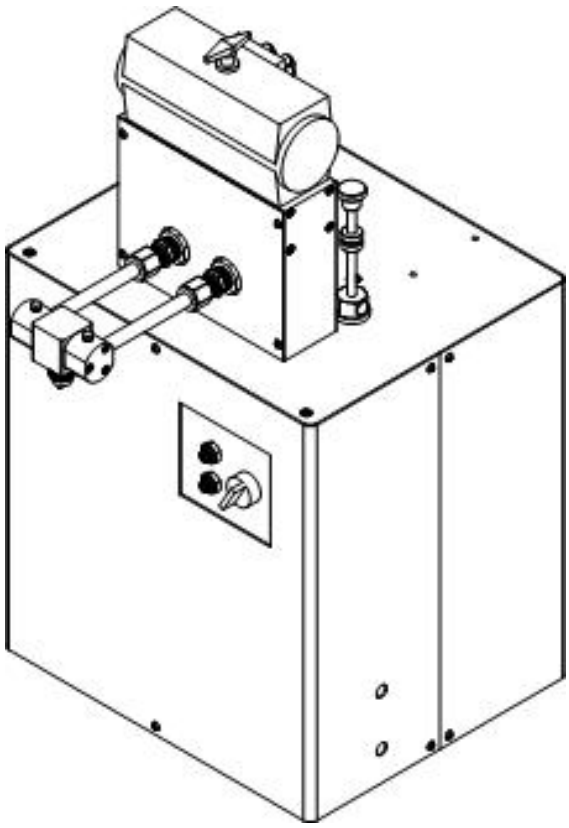
LOCTITE®

EQUIPMENT
Operation Manual



Loctite® DuraPump Meter Mix System

Part Numbers

1041648	1041647
1041643	1041636
1041641	1041620
1041637	
1041633	

Henkel

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1 Please Observe The Following

1.1 Emphasized Sections

⚠ **Warning!**
Refers to safety regulations and requires safety measures that protect the operator or other persons from injury or danger to life.

! Caution!
Emphasizes what must be done or avoided so that the unit or other property is not damaged.

☞ **Notice:**
Gives recommendations for better handling of the unit during operation or adjustment as well as for service activities.

1.2 For Your Safety

⚠ For safe and successful operation of the unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility.

⚠When using tank heaters; continuously monitor the operation until a stable temperature is reached. Do not heat any products beyond 180 F.

⚠Do not expose the connecting cable to heat, oil, or sharp edges.

⚠Make sure the Unit stands stable and secure.

⚠Use only original equipment replacement parts.

⚠Do not operate the Unit in excess of 20 cycles per minute.

⚠ Observe general safety regulations for the handling of chemicals such as Loctite® adhesives and sealants. Observe the manufacturer's instructions as stated in the Material Safety Data Sheet (MSDS).

☞ *While under warranty, the unit may be repaired only by an authorized Loctite service representative.*

1.3 Unpacking and Inspection

Carefully unpack the Loctite® DuraPump and examine the items contained in the carton. Inspect the unit for any damage that might have occurred in transit. If such damage has occurred, notify the carrier immediately. Claims for damage must be made by the consignee to the carrier and should be reported to the manufacturer.

1.4 Items supplied

- Meter-Mix Dispense System
- Pneumatic footswitch
- Night cap with nut
- Ratio cap with nut
- Sample silicone grease tube
- Machine manual

1.5 Features

- Single or Continuous Dispense Mode
- Footswitch or hand held pneumatic trigger
- Inlet feed pressure to 1500 PSI

1.6 Usage

- Use with bulk (non-cartridge packed) 2-part adhesives such as epoxies, urethanes, and acrylics.

2 Description

The Loctite® DuraPump Meter Mix System is a bench style, Two-part adhesive dispenser. It can effectively dispense epoxy, urethane, and MMA products. The system is based on Rod metering; whereas, precision rods displace a volume of product during a cycle. A full stroke of the metering rods can yield 28cc (1:1). Depending on the product, dose shots as small as 0.4cc can be achieved. The unit can be connected to receive product from a number of different feed types and can accept pressures up to 1,500 PSI.

☞ Use a high viscosity differential dispense valve or mix block where product viscosities are at least six times or more different from each other. High viscosity differentials will likely encounter mixing difficulties. A valve or manifold suited for that type of mixing should be acquired.

3 Technical Data

Dimensions (L x H x W):	approx. 12 1/2” W x 15” D X 27” H (approx. 318 mm 381 mm x 686 mm)
Total weight:	85 lbs.
Operating voltage:	N/A
Air Pressure:	Dry filtered; 80 – 100 PSI
Product inlet port:	½” NPT
Pneumatic inlet:	1/4” NPT

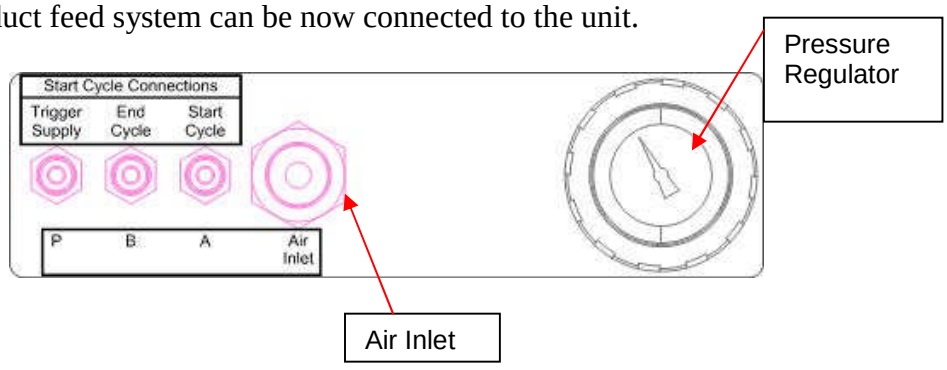
Metered Volume

Ratio	Full Stroke
1:1	28 ml
2:1	21.7 ml
4:1	18 ml
10:1	15.6 ml

4 Installation

! Before using the dispense system for the first time check it carefully for signs of external damage. If any shipping damage is found DO NOT USE THE MACHINE - return it to your supplier immediately.

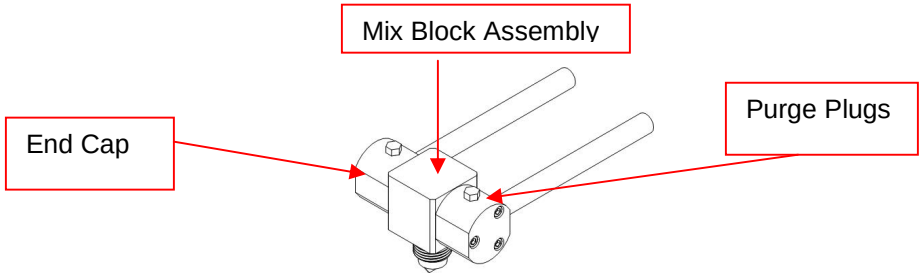
1. Place the MMD machine on a bench or other stable location appropriate for the dispense system. Ensure the machine is on a sturdy, level surface and can handle the weight and process actions required of the dispense unit. Use the leveling feet of the machine as necessary.
2. Connect a pneumatic supply to the pneumatic inlet fitting at the rear of the machine. Ensure a steady supply of 80 PSI.
3. Connect the footswitch or pneumatic trigger as labeled on the rear panel.
4. A product feed system can be now connected to the unit.



5 Operation

Prepare the machine for use:

1. Use the (optional) product mix-block assembly (1167586) or attach the desired dispense valve (see section 7.1 on off-ratio notes). This manifold is suitable for viscosities of 2,000 cps and higher.

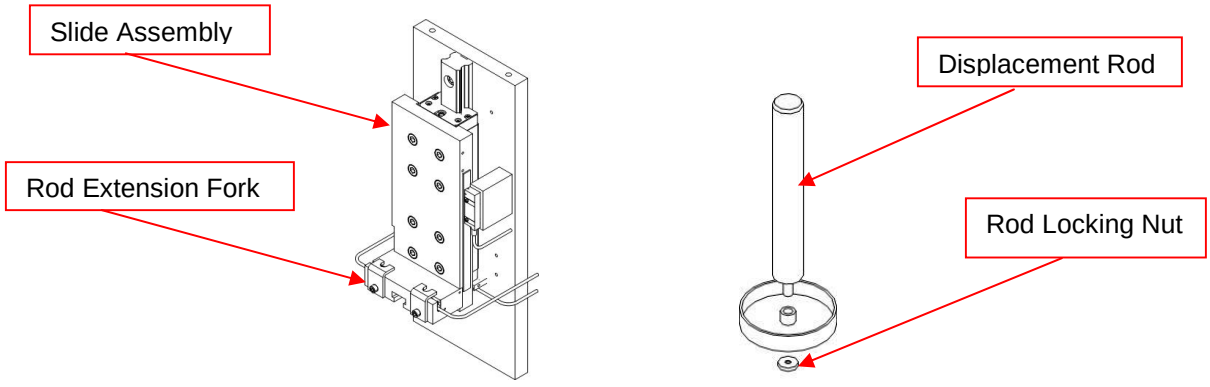


2. Connect the feed systems to the MMD machine.

3. Pour or pressurize the products to the MMD machine. Check for any leaks and repair connections if necessary before cycling.

☞ Fill the Metering Pump's grease reservoir to extend the life of the pump seals and maintain an air tight seal. Grease frequently when using filled materials or abrasives. Use a standard grease gun and an inert, silicone, or Loctite Food Grade Grease.

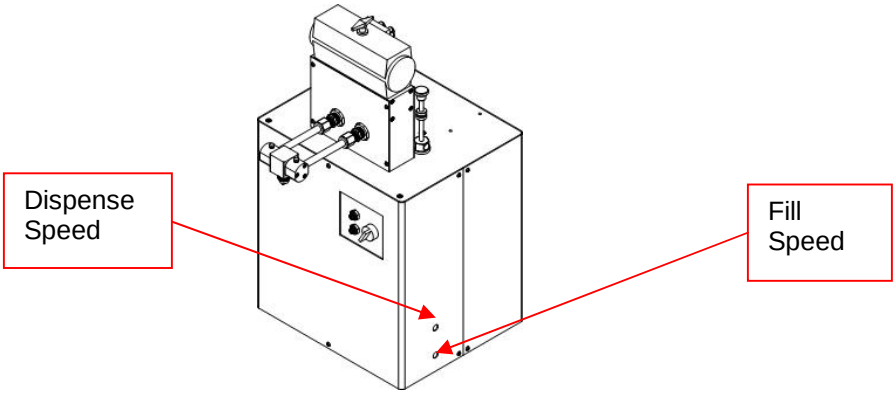
4. Rod Extension Forks are installed on all machines. If product A or B are (sufficiently) pressurized (around 250 PSI or higher, about 125 PSI if MMA seals are used), the 'Fork' can be removed. This fork is used to pull down the Displacement Rod during a re-charge. Removing the Fork allows the product pressure to extend the 'metering' rod and thus prevent cavitation or air entrapment (see caution section 7.1).



☞ **Do not allow the machine to cycle dry (without product). Excessive ball valve and or rod seal wear or damage could result.**

5. Place the machine in Single Dose Mode, and adjust the volume setting for a dispense dose or purge. Have a waste cup ready under the dispense point. Cycle the machine until product begins to come out of the dispense nozzle.
6. Use a flat tip screwdriver to adjust the DISPENSE rate by turning the top flow control on the Main Actuator (CW for slower; CCW for faster); accessible via panel holes on the right side of the machine. If making this adjustment becomes difficult, remove the front panel cover; but, **DO NOT** cycle the machine unless the ball valve interlock switch is closed (see section 7).

☞ **Do not allow the machine to recharge at a faster rate than the product can feed into the pumps. Excessive recharge rates could cause air pockets**



9. Adjust the pumps Fill (re-charge) rate by adjusting the bottom flow control on the main actuator (CW for slower; CCW for faster); accessible via panel holes on the right side of the machine.
10. Once the purge procedure is completed, perform a ratio check procedure.
11. If your machine is using the Rod Extension Forks (mentioned in item 4) do not install a static mix nozzle until the ratio is validated. This is to ensure that product is flowing properly into (and out of) the metering pumps.
12. The machine is ready for use.

☞ **Maintain the adhesive two components separate from each other at all times. Keep the nozzle area clean after each use to prevent curing.**

5.1 Ratio Check Procedure

This procedure is to ensure that the dispensed volume is at the proper ratio so that when the product goes through the mix nozzle, the adhesive will set and maintain proper bond strength.

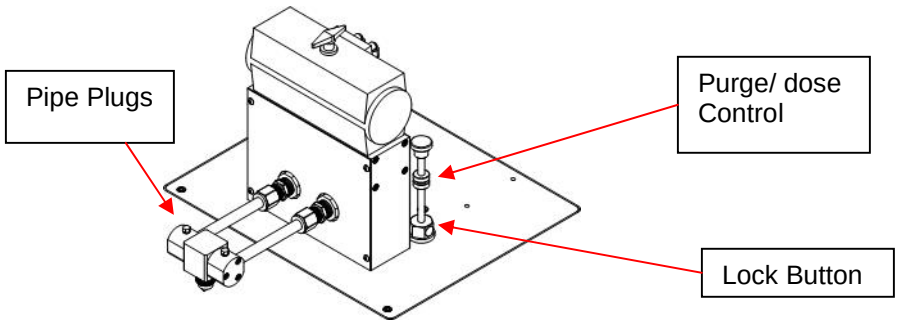
Ensure that both Part A and B are products are entering the metering pumps. If necessary remove lines or hoses from the DuraPumps's product outlet ports (or remove mixing valve) and check machine cycling to ensure smooth and even flow of product when the machine is cycled. If the machine is cycling faster than the pumps can be filled, an off-ratio condition will occur.

1. Install a ratio check cap on the dispense nozzle. If your valve type does not permit installing a ratio cap; you may be required to remove the valve and take samples at the end of the lines or hoses.
2. Use two small cups or dishes (one for each part) to capture the dispense volume. Weigh each empty cup and record.
3. Perform a single dose cycle on the MMD machine and capture the dispense amounts on the cups. The dose amount is typically the one used during the production run.
4. Weigh each cup. Calculate the actual weight of the product on the cups.
5. Divide the weight of Part A by the specific gravity of Part A product; do the same for Part B—this is the volume dispense for each.
6. Divide Part A volume by Part B volume—this is your ratio.

5.2 Purging the Dispense System

Purging becomes necessary when using the machine for the first time, the dispense path has been disconnected, or air has been introduced into the system.

1. The machine should be ready for normal cycling.
2. Remove the static mix nozzle from the dispense valve.
3. Set the machine to the Continuous Mode. Press the lock button and pull the knob all the way up (without disturbing the locking jam nuts).



4. Have a waste cup, beaker or pail under the mix-block or dispense valve being used to capture the dispensed product.

5. Cycle the machine until an uninterrupted (no air, no burping) flow of product occurs.
6. The purging will vary depending on the application, length of dispense hoses, and the length of product feed lines. Estimate the amount of product purge required according to the manner in which your MMD machine product path is connected.
7. To return to the previous dose size; press the lock button and push the knob all the way down.

☞ **If an off-ratio condition exists, it may be necessary to purge the mix-block assembly or dispense valve and hoses (if applicable); perform steps (8-11) below.**

8. Remove the pipe plugs at the top of each end cap on the mix block assembly (be prepared to capture product (both from the mix-block and from the purge holes at the top of the mix block). Product will drip up and around the end caps. If using a dispense valve, point the valve up so that the trapped air can be released when purging.
9. Reduce the cycle rate of the machine.
10. Cycle the machine until no air bubbles can be seen coming out of the top of the mix block,
11. Re-install the plugs, perform a ratio check and setup the machine for production if the ratio is good.

5.3 Machine Cycling

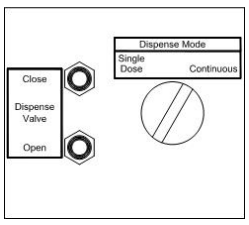
This MMD machine is capable of operating in two (run) modes.

- Single Dose (shot)
  - A momentary start signal will cause the machine to cycle for the volume of product selected and then re-charge the pumps; ready for the next cycle. The trigger signal must be released before the end of the refill cycle or another cycle will start.
- Continuous
  - This mode will cause the machine to cycle for as long as the dispense signal is present. The machine will dispense, recharge, and keep repeating until the start signal is removed.

5.4 Connecting a Machine Mounted Valve to the DuraPump

☞ **Ensure that inlet air and product inlet pressures are OFF**

1. Remove the mix-block assembly from the machine (if so equipped).



2. Attach the required hoses to the valve and to the DuraPump.
3. Remove the remote valve port plugs on the front of the machine.

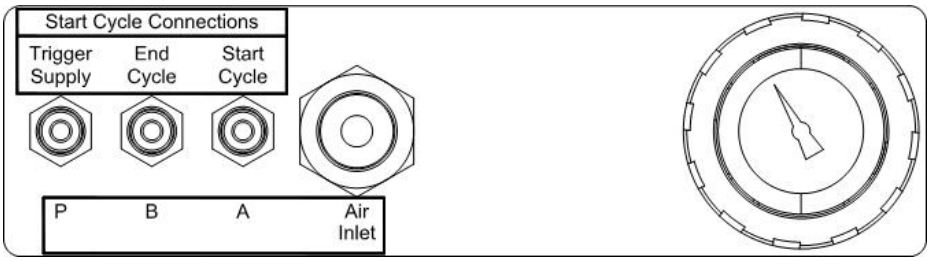
4. Connect a 5/32 air line from the ‘closed’ remote valve port to the closed pneumatic port on the valve. Do the same for the ‘open’ port.
5. The remote valve will cycle when the footswitch is actuated.

☞ **Do not cycle the machine (with product) unless you are sure that the valve is correctly connected. Cycling the machine with reversed air lines on the remote valve can cause damage to the machine or other dispense equipment.**

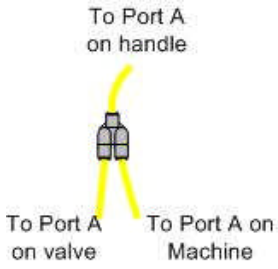
5.5 Connecting a Hand Held Dispense Valve to the DuraPump

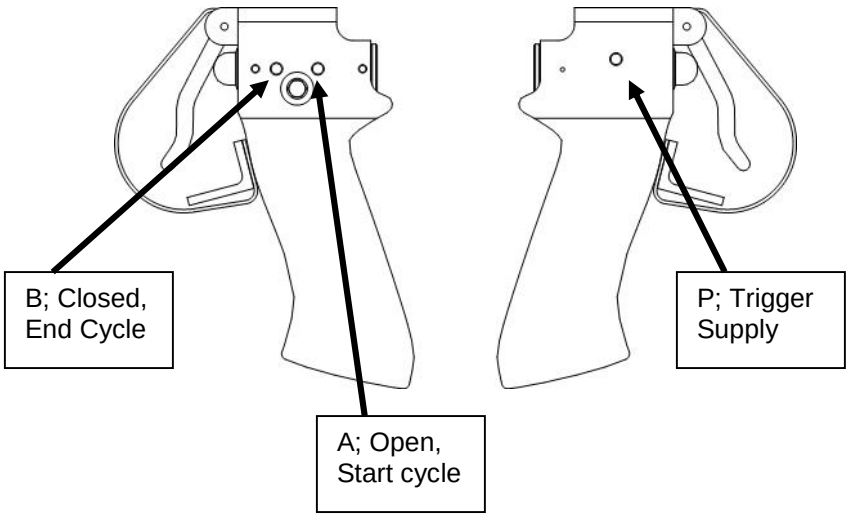
☞ **Ensure that inlet air and product inlet pressure are OFF**

1. There are 2 ways of connecting the valve to the machine. First method, perform 5.4 then run 3 lines from the P, A and B connections on the rear of the machine to the handle on the Valve (see handle illustration below).
2. Second method; remove the pneumatic footswitch (and airlines) from the machine.
3. Attach a 5/32” air line to the P port on the rear of the machine and connect to the pilot or constant air to the gun valve (single port side on the hand grip).



4. Connect a Tee fitting at the valve’s OPEN port using a short length of tubing (5/32); then connect another short length of air line from the handle’s A port to this Tee. Connect a long (as needed) air line from the A port (Tee) of the valve to the OPEN (A) port on the machine.
5. Do step 4 above for the CLOSED (B) port.
6. The remote valve will cycle when the trigger is actuated on the remote dispense valve.





☞ **Do not cycle the machine (with product) unless you are sure that the valve is correctly connected. Cycling the machine with reversed air lines on the remote valve can cause damage to the machine or other dispense equipment.**

5.6 Machine Shut Down

After the final cycle of the day, de-pressurize the product feed systems and turn off the pneumatic supply. Remove the static mix nozzle and clean the nozzle area. Spread some silicone grease on the night-cap and install on the dispense nozzle. The silicone grease will seal and keep moisture out.

The machine will continue to operate without adhesive curing problems so long as the adhesive lines, pumps and dispense points are kept sealed and free of contamination.

6 Dispense Volume Calculations

Performance depends on the product being used. Due to the dynamics of products, static nozzle, and application dispense rate, the volume dispense may vary from the programmed amount.

☞ When taking volume measurements, ensure that the product has not been idle in the static mix nozzle long enough to affect the viscosity of the material in the mixer.

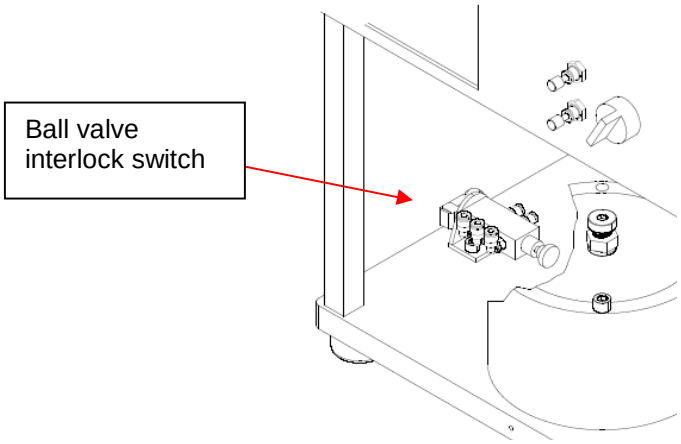
1. To ensure that the dispensed volume for the application is being met, cycle the machine (at the appropriate dispense volume) a couple of times.

2. Have a small dish to capture samples and a grams scale.
3. Cycle the machine and capture the dispense amount on a dish or cup.
4. Weigh the sample and record the measurement; repeat this another 2 times.
5. Obtain the volume by dividing the (dose) weight by the specific gravity of the mixed material.

7 Troubleshooting

⚠ **Before proceeding with any repair, or maintenance operation turn off the air supply to the machine. Ensure that any pressure build-up in the product lines or control system has been relieved.**

To help with troubleshooting cycling problems, or pump issues, this machine features a maintenance switch that will close the ball valve to the (product) inlet (accessible when the front cover panel is removed—on left side of the machine). This will allow the removal of the pumps without having to disconnect the product feed. The air to the machine can then be turned off for safety (and the ball valve will remain closed to product feed). The valve/switch must be actuated manually—you will immediately notice the ball valve actuator cycle. When the actuator cycles—it is no longer in a dispense mode **DO NOT** cycle (RUN) the machine when the ball valve is reversed (for maintenance). This kind of work should only be done by qualified personnel that are familiar with and understand the machine's components and functions.



7.1 Machine is off-ratio

The metering pumps are precision made for the chosen product ratio. Off-ratio condition is primarily attributed to air in the system. The machine must be purged until air (in the product patch) is removed.

On machines that are using Rod Extension Forks (to re-charge the pumps), care must be taken that the recharge is adjusted so that it allows time for product to enter the metering pumps. If the re-charge is too fast, a vacuum

can be created each time the machine re-charges; this will cause an off-ratio condition each time the machine cycles—see section 5.1

Off-ratio condition can also occur when part A and part B have viscosities that are at a 6 to 1 or greater difference, and a high viscosity differential mix block manifold (or valve) is not being used. For example, if part A is 75 cps and part B is 800 cps. There is slightly over 10 times the difference in viscosities between the two products.

☞ **Do not allow the feed system to run low on product or air will be introduced into the system.**

Another way that the machine could be dispensing 'off-ratio' is if the machine is leaking product from one or both metering pumps. Inspect the metering pumps and ensure that if there is seepage, that it is not excessive. Excessive leakage is an indication that the seals, the metering rod, or both may require replacing.

7.2 Cycling is too slow or too fast

If the machine had been cycling correctly, and suddenly begins to recharge at a faster rate, air is getting into the pumps (this is likely with a pressurized reservoir, for instance). Air is typically introduced through the product feed system.

If the machine's recharge rate begins to decrease, the product viscosity may have increased. The pumps seals could also have reacted with the product and swollen in size causing greater friction between the rod and seals; the seals may need replacement.

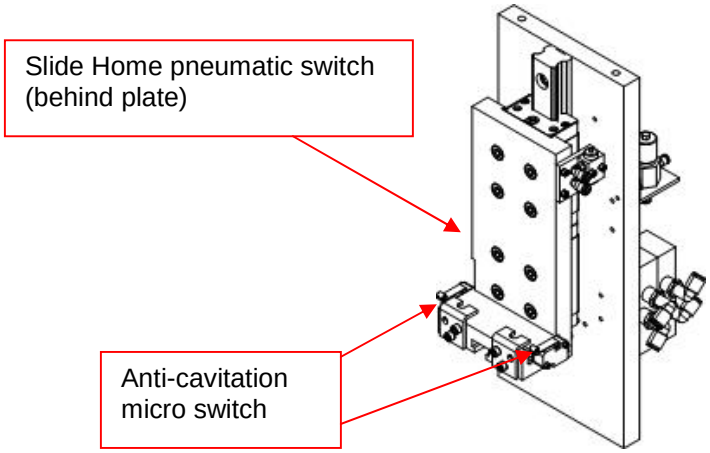
7.3 Pumps are leaking material

Some amount of leakage from the rods is normal. Most of the product accumulating on the rods is grease (from the grease reservoir). If the leakage is excessive (a large drop forming in less than 1,000 cycles), the seals may be worn. Premature seal wear is typically due to abrasives in the product, foreign particles in the product, or operating the unit with abrasive products (or fillers) and not greasing the reservoir at regular intervals.

Pumps will also at the interface (joint between pump tube and seal housing) if the machine was cycled and there was no outlet for the product to escape. This excessive pressure could damage a pump seal and cause leaking.

7.4 Machine will not cycle

If the machine will not cycle, make sure that the metering rods are fully extended (fill position). The Rod extended position is monitored by pneumatic switches (located under the drip cups); make sure these are closed. Also, the slide assembly Home position pneumatic switch must be closed. Ensure that the pump actuator has ample pneumatic supply. Neither of the main drive (pump) actuator flow controls should be fully closed.



If the 3-way ball valve does not actuate, the machine will not cycle. Check the ball valve for air, and that the solenoid is being actuated.

Troubleshooting Table

Problem	Mode	Possible Cause	Action
Will not start	Either	Home switch or Rod Home lever switches	Make sure the lever closes the switch; test with a small flat tip screwdriver or similar device.
	Single dose	Pulse Valve	This valve gives a small dose after a cycle-start signal. Test by removing the tubing at the far end of the OUT port of the valve; block the line and actuate a cycle; if no pulse, replace PV-1.
	Either	R-436 Module	After a cycle start, air should be coming out of port 3 of this module; otherwise replace.
Will not cycle	Continuous	Mode selector switch	Air should come out of this valve when cycled; otherwise replace.
		R-351 Module	Air should come out of port 2 of this module; otherwise replace.
Machine does not recharge	Either	Upper limit switch	Ensure the switch is closing; adjust switch lever.
Trying to dispense but rods are unable to move upward	Either	Interlock front panel cover switch	Do not operate the machine with the interlock switch actuated; return to normal position before cycling the machine.
		Ball Valve Actuator	The air lines could be reversed.
Overshooting the Upper Limit switch	Either	Upper Limit Switch switching problem.	Replace the pneumatic switch.
		Machine is dispensing too rapidly	Adjust the dispense flow control.
		Home switch is stuck closed	Adjust or replace the switch.

FOR ANY REPAIRS OR ADJUSTMENTS – OTHER THAN THOSE DETAILED IN THIS MANUAL – PLEASE CONTACT 1-800-LOCTITE (562-8483).

8 Care and Maintenance

- In the initial first few weeks of operating the machine, check the drip cups at the end of the metering rods every two days. Clean the cups if necessary. Establish a maintenance schedule (daily, weekly, monthly) depending on observations made during the observation period.

- When shutting the machine down, remove the static mixer and clean the end of the nozzle with a solvent like IPA. Put a bit of silicon grease on the night cap and install on the nozzle to keep air and moisture out.

- Keep the dispense nozzle and thread area clean (daily) to prevent adhesive build-up. This is done by wiping the nozzle with clean paper or cloth; with a solvent such as isopropyl alcohol or acetone (do not use acetone on painted surfaces or on plastics or seals).

- Re-lube the grease reservoir until grease comes out of the reservoir relief port. Typically, a once a week re-lubing will be all that is required. Monitor the metering rods for dryness as an indication that lubing may be necessary (higher cycling rates will dry out the rods sooner). Grease helps to maintain an air tight seal and in keeping the seals from drying out, thus reducing wear due to high friction. Greasing should be conducted more frequently when using filled or abrasive materials. Use a mineral base grease such as Loctite Food Grade Grease (item 51252; 14.5 oz cartridge), or use a silicone base grease for this servicing.

8.1 Replacing a Pump

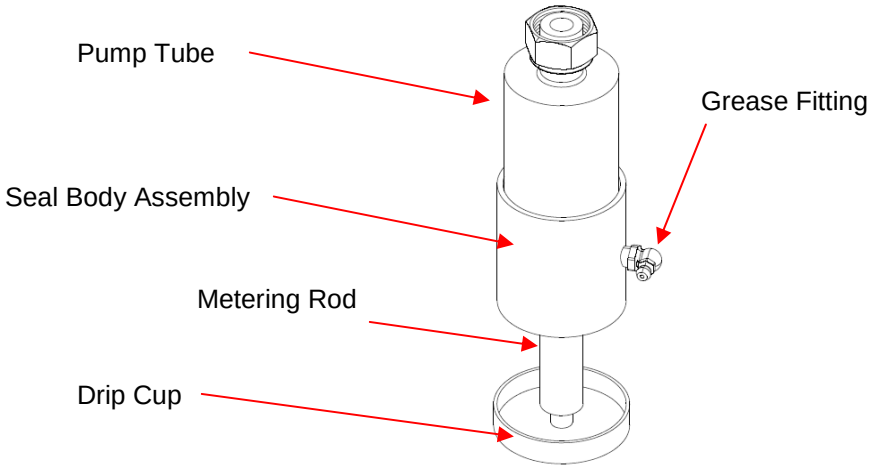
☞ Always wear protective clothing and eye protection when servicing the machine.

1. In Single Dose mode, set a shot about mid-way of full stroke.
2. If the Rod Extension forks are installed, remove the one off of the pump that is to be removed from the machine.
3. Start a cycle; this will leave the rod inserted inside the pump about mid-way (and allow room for the removal of the pump).
4. Make sure product pressure is off and air to the machine has been turned off. Remove the front panel cover of the machine.

☞ **If the Pump being removed is fed by a gravity tank, actuate the button on the interlock switch (inside the machine; see section 7). This will**

rotate the 3-way ball valve and prevent the feed tank from emptying out. Once the valve is actuated, air can be removed from the machine. Make sure the pneumatic switch is returned to normal position when servicing is completed.

Pump Assembly



5. Have some wipes (or small cup) ready when the pump is removed to catch oozing (remaining) product in the lines.
6. Use a long handle open-end wrench (1-1/8)" and loosen the compression fitting on the metering pump; pull the pump down and remove from the machine.
7. Place paper or cloth wipes beneath the metering pump to catch any product drip from the bottom of the 3-way ball valve.

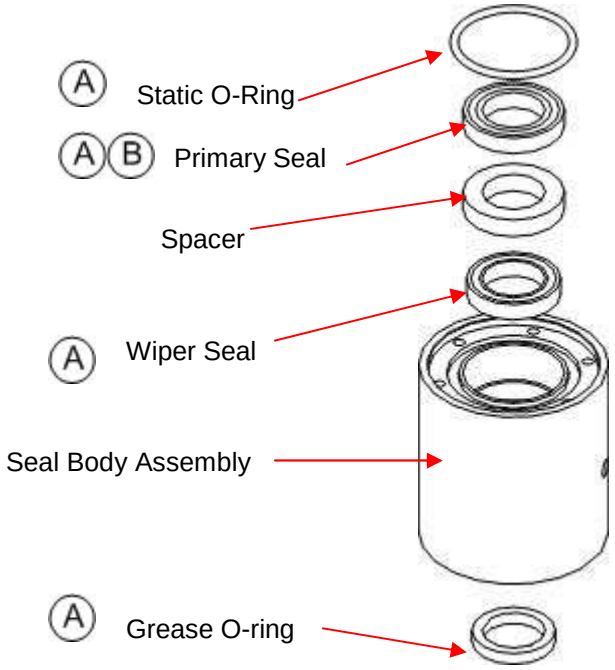
8.2 Replacing the Pump Seals

☞ **Exercise care when removing the seals and seal spacer. Do not score or mar the inside diameter surface of the seal assembly or seal spacer; product leakage will occur.**

1. Remove the required pump from the machine.
2. Pull out the metering rod and wipe clean using isopropyl alcohol (a static mix nozzle or similar device can be inserted at the inlet of the pump to help push-out the rod).
3. Remove six hex screws from the bottom of the metering pump.
4. Take the lower part of the pump and clean the adhesive of the top.
5. Remove the static o-ring, and the primary seal. Do not use sharp instruments or tools to remove the seals or spacer.
6. Carefully remove the seal spacer, and then remove the wiper seal. The spacer comes out by tapping the Seal Assembly on a table or

carefully tapping the spacer from the backside (grease o-ring side) with a blunt tool-avoid hitting the edges.

7. Installation is in the reverse order. The seal spacer can be cleaned and reused (if not damaged).



(A) Available in Seal Kit items (see section 9 Accessories and Spare Parts)

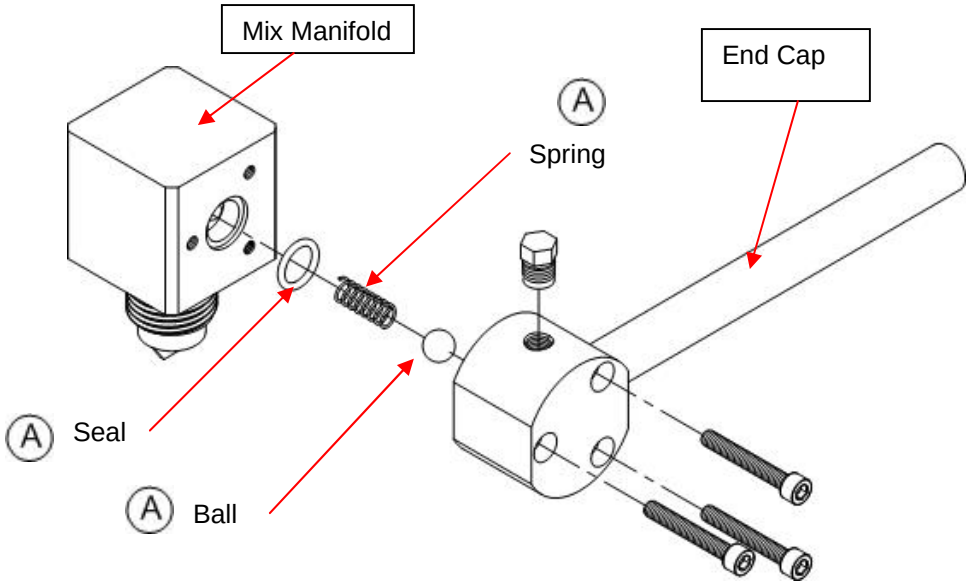
(B) Available in Primary Seal items (see section 9 Accessories and Spare Parts)

8.3 Mix Block Repair Kit

The Mix-Block has a spring and ball arrangement that act as a check valve to allow product to move in one direction only—out towards the dispense nozzle. In this manner, product cannot be forced back into the product flow path (towards the pumps). This also prevents one adhesive component from making its way into the other component's product path. A Teflon seal prevents product leakage at the interface point between the mix-block and the end caps.

⚠ **Ensure that the feed system is depressurized, and that a cycle start cannot be initiated.**

1. The mix-block seal kit is comprised of two stainless steel balls, two springs and two Teflon seals.
2. Remove three hex screws (of the required side) from the end cap assembly.
3. Remove the ball and spring and insert the new (replacement) set. Replace the Teflon seal on the side of the mix block.
4. Re-install the end cap assembly to the mix-block assembly.
5. Perform a purge to ensure product flow and air removal from the system.



A Available as Mix Block Manifold Seal Kit item # 1069945

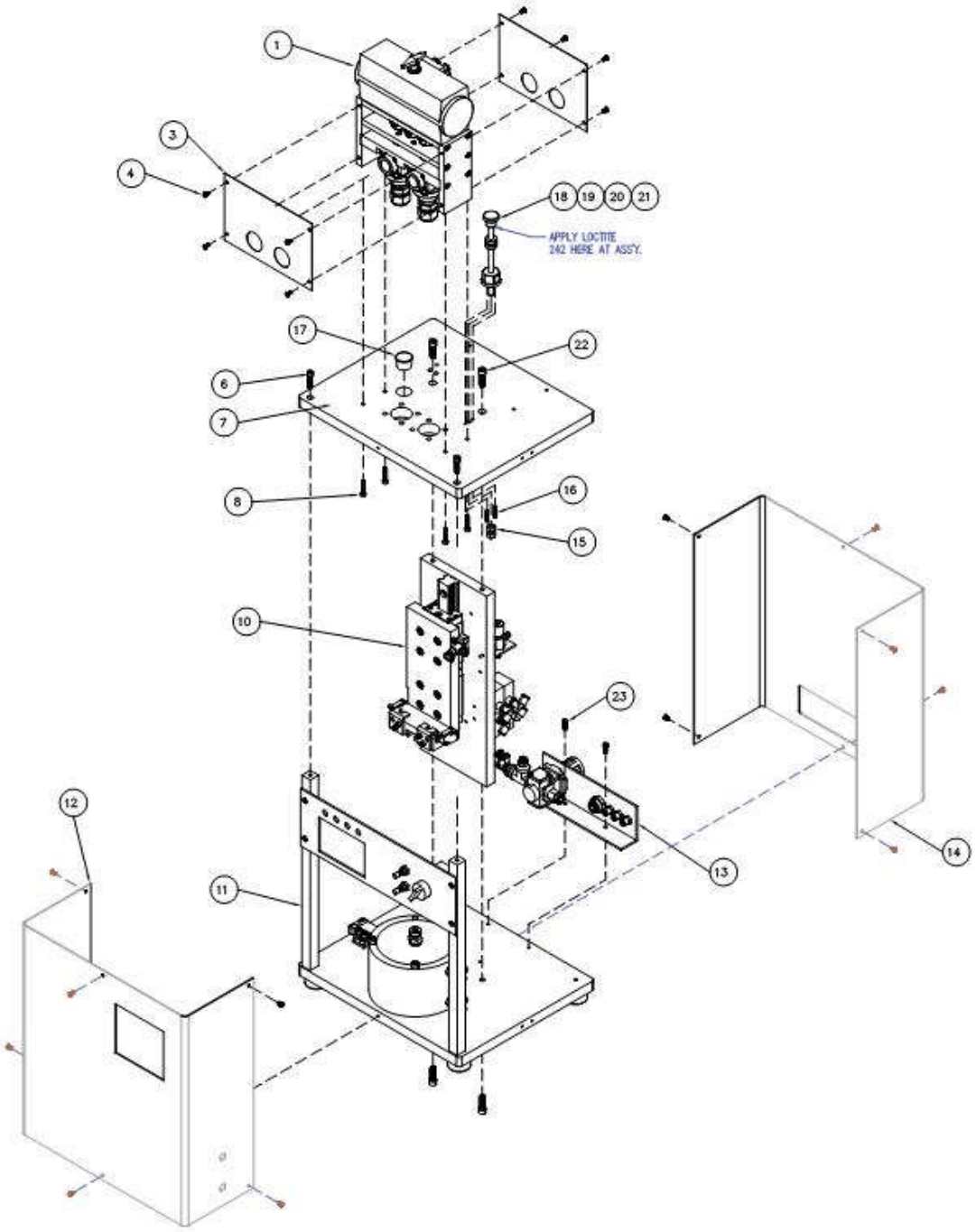
9 Accessories and Spare Parts

Description	Item Num#
9.5 L Gallon Gravity Feed Reservoir Kit Includes Tank, fittings, tubing and mounting hardware	1051660
7 L Gallon Nickel Plated Steel Gravity Feed Reservoir Includes: Lid, tubing, and fittings	1051659
Gravity Tank Stand (for either 9.5 or 7 liter, can hold 2 tanks)	1051651
Agitator Assembly (electric)	1051655
Night Cap with Nut	1053260
Ratio Cap with Nut	1053261
High Viscosity Differential Valve, General Purpose	1079254
High Viscosity Differential Valve, MMA	1079256
Orifice Kit, High Viscosity Differential Valve	1079255
Precision Flow Rate Controller	1069695
Disposable Desiccant Breather	1051657
Mix-block Manifold Seal Kit (includes seals, balls and springs)	1069945
Mix-Block Manifold (stainless steel)	1069947
Mix Block Assembly (8901168 complete)	1167586
3-Way Ball Valve Repair Kit, for 8901166	1069944
3-Way Ball Valve Repair Kit, for 8901587	1130327
19.1 mm Seal, Primary, General Purpose	1061920
13.5 mm Seal, Primary, General Purpose	1061919
9.5 mm Seal, Primary, General Purpose	1061918
6.0 mm Seal, Primary, General Purpose	1061917
Custom, General Purpose Primary Seal (must specify size)	1176436
19.1 mm Seal, Primary, MMA	1062436
6.0 mm Seal, Primary, MMA	1061916
Custom, MMA Primary Seal (must specify size)	1176438
19.1 mm Seal kit, General Purpose	1061915
13.5 mm Seal Kit, General Purpose	1061914
9.5 mm Seal Kit, General Purpose	1061913
6.0 mm Seal Kit, General Purpose	1061913
Custom, General Purpose Seal Kit (must specify size)	1176437
19.1 mm Seal Kit, MMA	1061911
6.0 mm Seal Kit, MMA	1061900
Custom, MMA Seal Kit (must specify size)	1180635
19.1 mm Pump Assembly, General Purpose	1046192
13.5 mm Pump Assembly, General Purpose	1046191
9.5 mm Pump Assembly, General Purpose	1046170
6.0 mm Pump Assembly, General Purpose	1046169
19.1 mm Pump Assembly, MMA	1046161
6.0 mm Pump Assembly, MMA	1046166
Custom Pump Assembly, General Purpose (specify ratio)	1046168
Custom Pump Assembly, MMA (specify ratio)	1046165

For parts not listed on this list, please contact 1-800-LOCTITE

10 Exploded Diagrams Parts List

8901305 DuraPump Pneumatic Assembly



8901305 BOM DuraPump Pneumatic Assembly

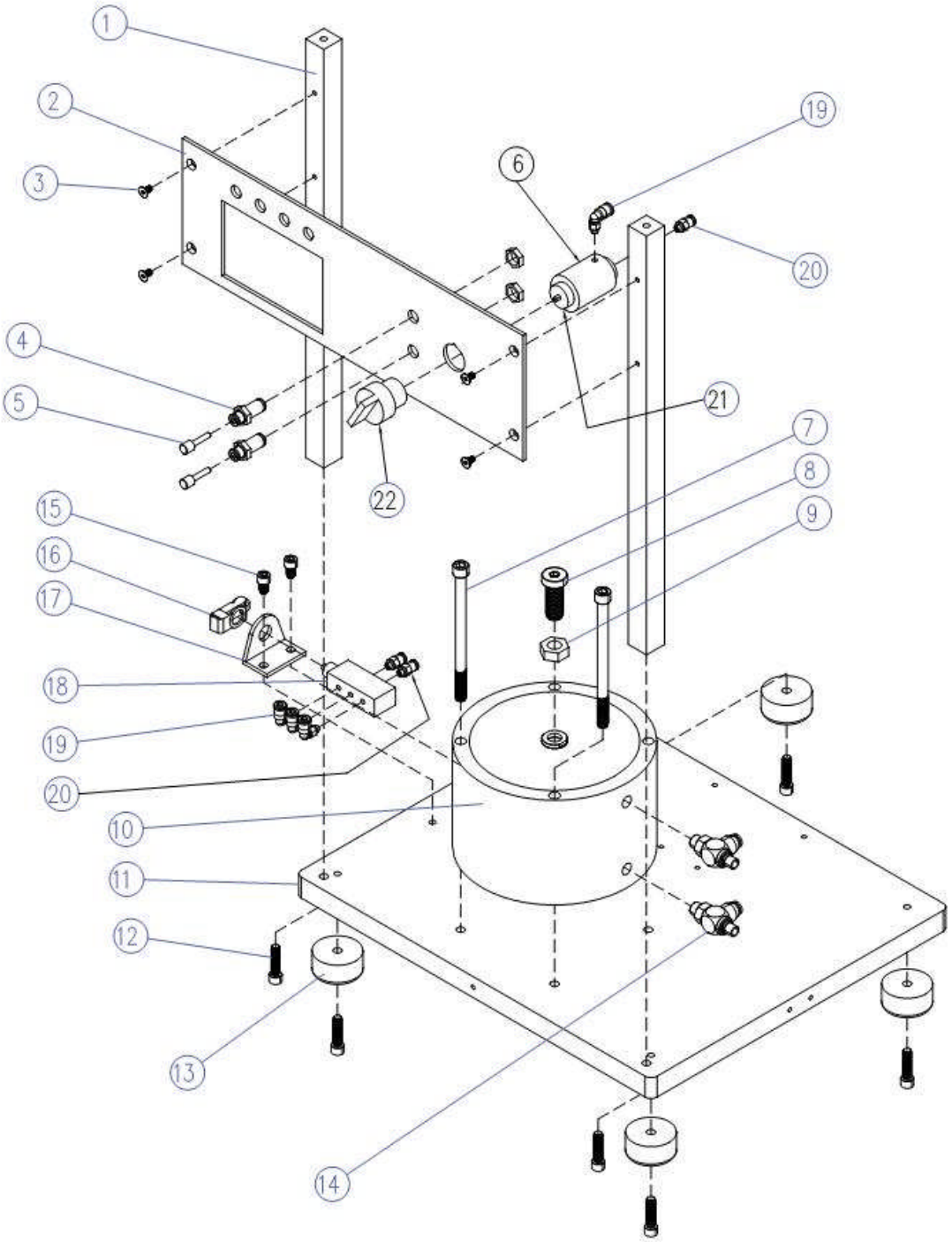
DURAPUMP PNEUMATIC BASE
EXPLODED VIEW & BOM

8901305

ITEM	QTY.	DESCRIPTION	PART NUMBER
23	2	SOCKET HEAD CAP SCREW #10-24 X 3/8, BLACK OXIDE	8901215
22	4	SOCKET HEAD CAP SCREW 5/16-18 x 1, STAINLESS STEEL	980883
21	1	THREADED KNOB 5/16-18, STEEL, BLACK OXIDE	8901314
20	2	ROUND KNURLED SHOULDER LOCKNUT 5/16-18	8901313
19	1	THREADED ROD, 5/16-18 x 8", STEEL, ZINC PLATED	8901312
18	1	SPEED NUT 5/16-18	8901311
17	1	HOLE PLUG (FOR 3/4 NPT)	8901162
16	2	SOCKET HEAD CAP SCREW #5-40 X 3/4, BLACK OXIDE	985513
15	2	HEX NUT, 5/16-18	980897
14	1	DURAPUMP REAR COVER	8901174
13	1	DURAPUMP REAR PORT ASSEMBLY, PNEUMATIC VERSION	8901308
12	1	DURAPUMP FRONT COVER WITH ARTWORK	8901171
11	1	DURAPUMP BASE ASSEMBLY EXPLODED VIEW, PNEUMATIC VERSION	8901307
10	1	DURAPUMP SLIDE ASSEMBLY EXPLODED VIEW, PNEUMATIC VERSION	8901306
9			
8	4	SOCKET HEAD CAP SCREW #10-24 X 1, BLACK OXIDE	984738
7	1	DURAPUMP TOP PLATE	8901175
6	2	SOCKET HEAD CAP SCREW 1/4-20 X 1, STAINLESS STEEL	981703
5			
4	20	BUTTON HEAD SOCKET SCREW #8-32 X 1/4, STAINLESS STEEL	8901164
3	2	DURAPUMP VALVE DRIVE COVER	8901167
2	1	PNEUMATIC DIAGRAM	8901413
1	1	DURAPUMP VALVE DRIVE ASSEMBLY EXPLODED VIEW	8901165

PARTS LIST

8901307 Base Assembly



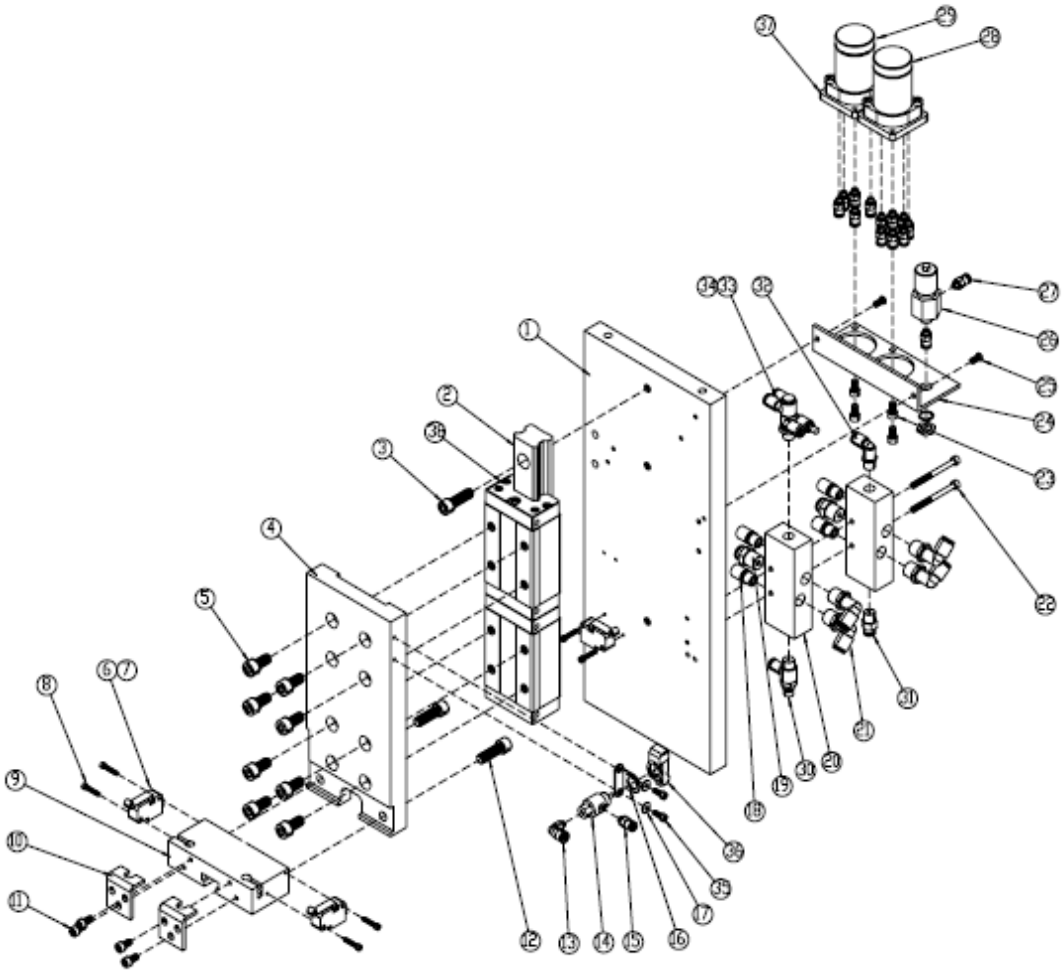
8901307 Base Assembly BOM

DURAPUMP BASE EXPLODED VIEW
PNEUMATIC VERSION

8901307

22	1	MANUAL ACTUATOR, 90 DEGREE TWIST, MAINTAINED	8901339
21	1	VALVE ADAPTOR FOR PUSHBUTTONS	8901338
20	3	FITTING, MALE CONNECTOR, 5 /32 TUBE X #10-32	8901333
19	4	FITTING, MALE ELBOW, 5/32 TUBE X #10-32	8900555
18	1	SPOOL VALVE, 4 WAY, PLUNGER ACTUATED	8901342
17	1	VALVE MOUNTING BRACKET	8901341
16	1	ROLLER CAM ACTUATOR	8901340
15	2	SOCKET HEAD CAP SCREW 1/4-20 X 3/8, BLACK OXIDE	982591
14	2	FLOW CONTROL, 1/4 TUBING X 1/8 NPT	8901243
13	4	RUBBER FEET WITH STEEL WASHER	8901242
12	6	SOCKET HEAD CAP SCREW, 1/4-20 X 1", BLACK OXIDE	981474
11	1	BASE PLATE	8901244
10	1	CYLINDER, 5" BORE, DOUBLE ACTING	8901241
9	1	REGULAR HEX JAM NUT 1/2-13, ZINC PLATED	8901236
8	1	LOW HEAD SOCKET CAP SCREW, 1/2-13 X 1 1/4, BLACK OXIDE	8901238
7	2	SOCKET HEAD CAP SCREW 5/16-18 X 4 1/2, BLACK OXIDE	8901237
6	1	POPPET VALVE, 3 WAY	985338
5	2	FITTING PLUG, 5/32 TUBING	8901240
4	4	BULKHEAD FITTING, 5/32 TUBING	8901239
3	4	FLAT HEAD SOCKET SCREW, #8-32 X 5/16, BLACK OXIDE	987958
2	2	BASE ASSEMBLY CONTROL PLATE	8901246
1	2	BASE ASSEMBLY POST	8901245
ITEM	QTY.	DESCRIPTION	PART NUMBER
PARTS LIST			

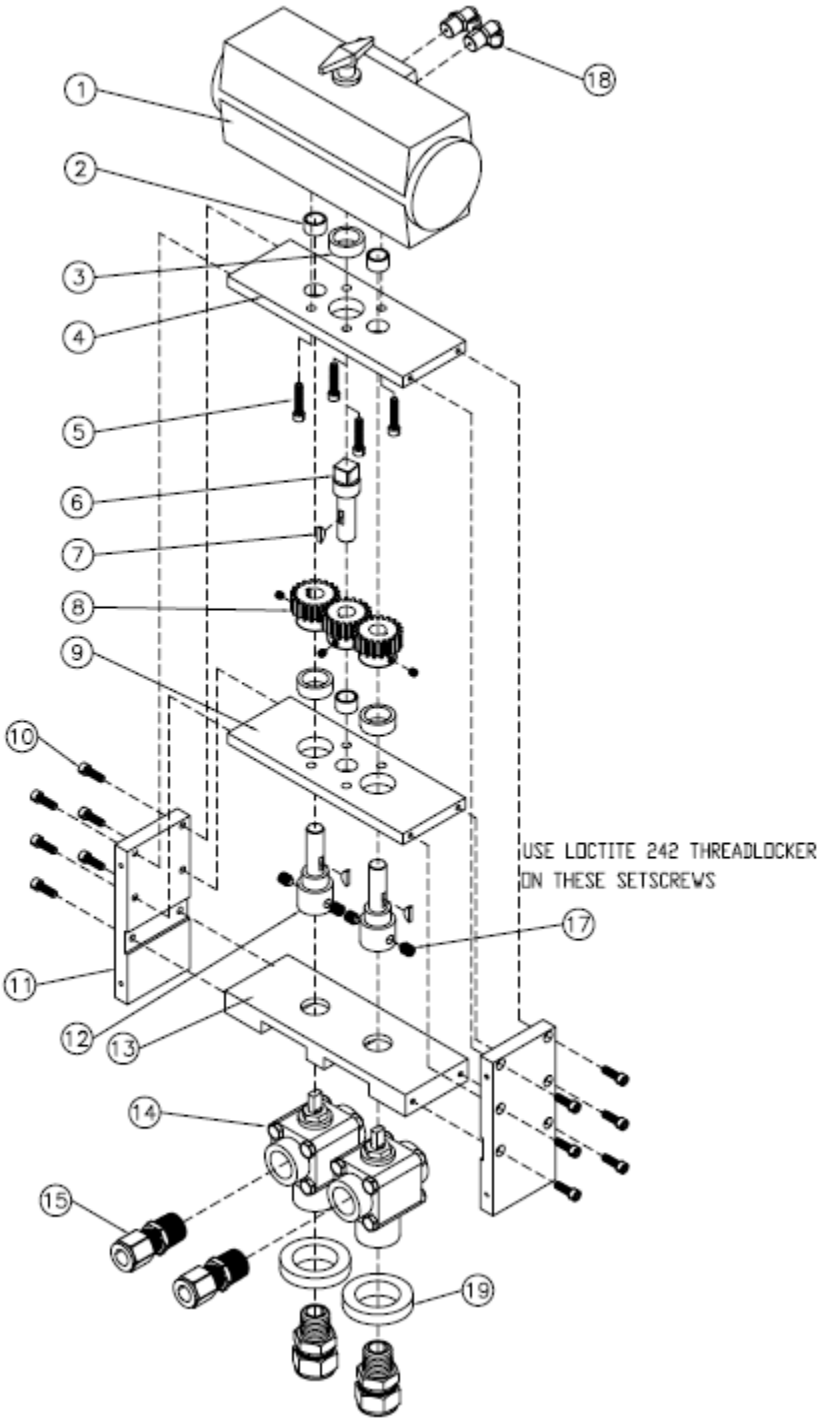
8901306 DuraPump Slide Assembly



8901306 DuraPump BOM Slide Assembly

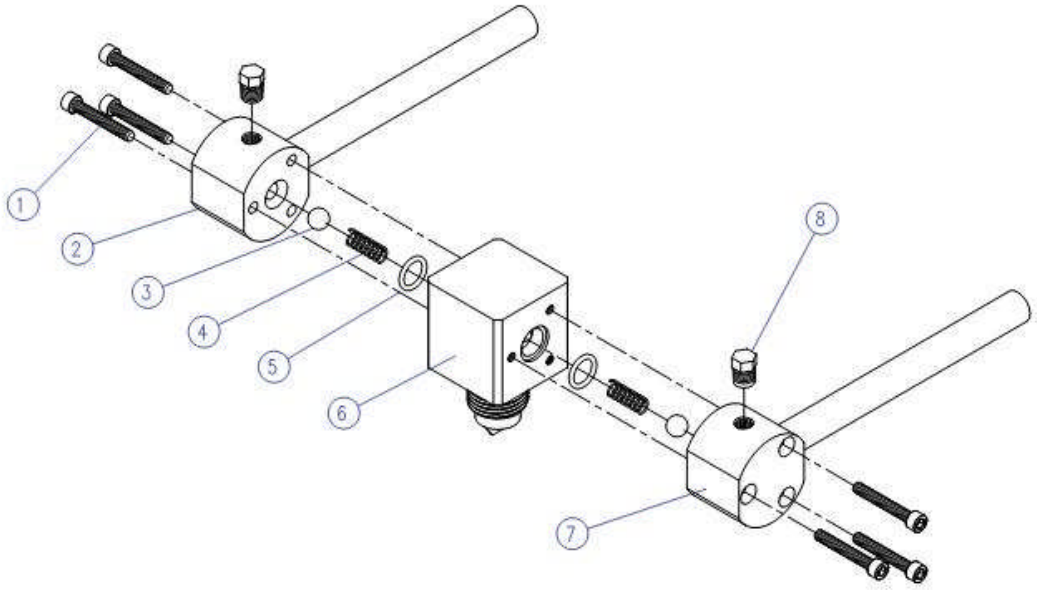
38	2	LINEAR SLIDE BLOCK	8901212
37	2	MODULAR VALVE SUBPLATE	8901337
36	1	ROLLER CAM ACTUATOR	8901340
35	2	SOCKET HEAD CAP SCREW #6-32 X 3/8, BLACK OXIDE	994597
34	1	FITTING PLUG, 5/32 TUBE	984747
33	1	DOUBLE BRANCH FITTING, 1/8 NPT X 5/32 TUBE	8901345
32	1	MALE ELBOW FITTING, 1/8 NPT X 5/32 TUBE	983664
31	1	MALE CONNECTOR FITTING, 1/8 NPT X 5/32 TUBE	983660
30	1	FLOW CONTROL, METERS INPUT, 1/8 NPT X 5/32 TUBE	8901382
29	1	DUAL TWIN PILOT 4 WAY VALVE	8901335
28	1	DUAL NORMALLY CLOSED 3 WAY VALVE	8901334
27	14	MALE CONNECTOR FITTING, 5/32 TUBE X #10-32 THREAD	8901333
26	1	PULSE VALVE	985367
25	2	BUTTON HEAD SOCKET SCREW #8-32 X 3/8, BLACK OXIDE	984778
24	1	VALVE MOUNTING BRACKET	8901332
23	4	SOCKET HEAD CAP SCREW #10-32 X 3/8, BLACK OXIDE	997089
22	2	SOCKET HEAD CAP SCREW #8-32 X 2, BLACK OXIDE	982616
21	4	MALE CONNECTOR FITTING, 1/4 TUBE X 1/4 NPT	983667
20	2	VALVE, 4 WAY, 2 POSITION, DOUBLE PILOT	8901331
19	2	MALE CONNECTOR FITTING, 1/4 TUBE X 1/4 NPT	983667
18	4	MUFFLER, 1/8 NPT	8901224
17	2	FLAT WASHER #6	989979
16	1	ANGLE MOUNTING BRACKET	8901589
15	1	MALE CONNECTOR FITTING, 5/32 TUBE X #10-32 THREAD	8901333
14	1	PNEUMATIC LIMIT VALVE	985338
13	1	MALE ELBOW FITTING, 5/32 TUBE X #10-32 THREAD	8900555
12	2	SOCKET HEAD CAP SCREW 5/16-18 X 1, BLACK OXIDE	999864
11	4	SOCKET HEAD CAP SCREW #10-24 X 3/8, BLACK OXIDE	8901215
10	2	HORIZONTAL SLIDE PLATE FORK BRACKET	8901231
9	1	HORIZONTAL SLIDE PLATE	8901230
8	6	SOCKET HEAD CAP SCREW #4-40 X 5/8, BLACK OXIDE	8901327
7	3	PNEUMATIC LIMIT VALVE ROLLER ARM	8901326
6	3	PNEUMATIC LIMIT VALVE	8901325
5	8	SOCKET HEAD CAP SCREW M8 X 1.25 X 16MM LG, BLACK OXIDE	8901214
4	1	VERTICAL SLIDE MOUNTING PLATE	8901229
3	4	SOCKET HEAD CAP SCREW 5/16-18 X 1, BLACK OXIDE	999864
2	1	LINEAR SLIDE RAIL	8901213
1	1	MAIN VERTICAL PLATE	8901228

8901165 Valve Drive Assembly



8901165 Valve Drive Assembly BOM

19	2	BALL VALVE SPACER	8901588
18	2	FITTING, QUICK CONNECT ELBOW 1/4 TUBE X 1/4 NPT	983667
17	4	DOG POINT SOCKET SET SCREW 5/16–18 X 3/8	982334
16	2	MALE CONNECTOR FITTING, 3/4 TUBE X 1/2 NPT	8901201
15	2	MALE CONNECTOR FITTING, 1/2 TUBE X 1/2 NPT	8901200
14	2	3 WAY BALL VALVE, 1/2 NPT	8901587
13	1	VALVE MOUNTING PLATE	8901204
12	2	VALVE DRIVE SHAFT	8901182
11	2	VALVE DRIVE SIDE PLATE	8901184
10	12	SOCKET HEAD CAP SCREW #10–24 X 5/8 LONG	8901144
9	1	VALVE DRIVE BOTTOM PLATE	8901185
8	3	VALVE DRIVE GEARS, 16 PITCH, 20 TEETH, 14.5° PRESSURE ANGLE	8901143
7	3	WOODRUFF KEY #3 (USA 404)	8901145
6	1	VALVE DRIVE ACTUATOR SHAFT	8901183
5	4	SOCKET HEAD CAP SCREW 1/4–20 X 5/8 LONG	995661
4	1	VALVE DRIVE TOP PLATE	8901181
3	3	BRONZE SLEEVE BEARING .750 X 1.000 X .375	8901147
2	3	BRONZE SLEEVE BEARING .500 X .625 X .375	8901146
1	1	VALVE ACTUATOR	8901180
ITEM	QTY.	DESCRIPTION	PART NUMBER



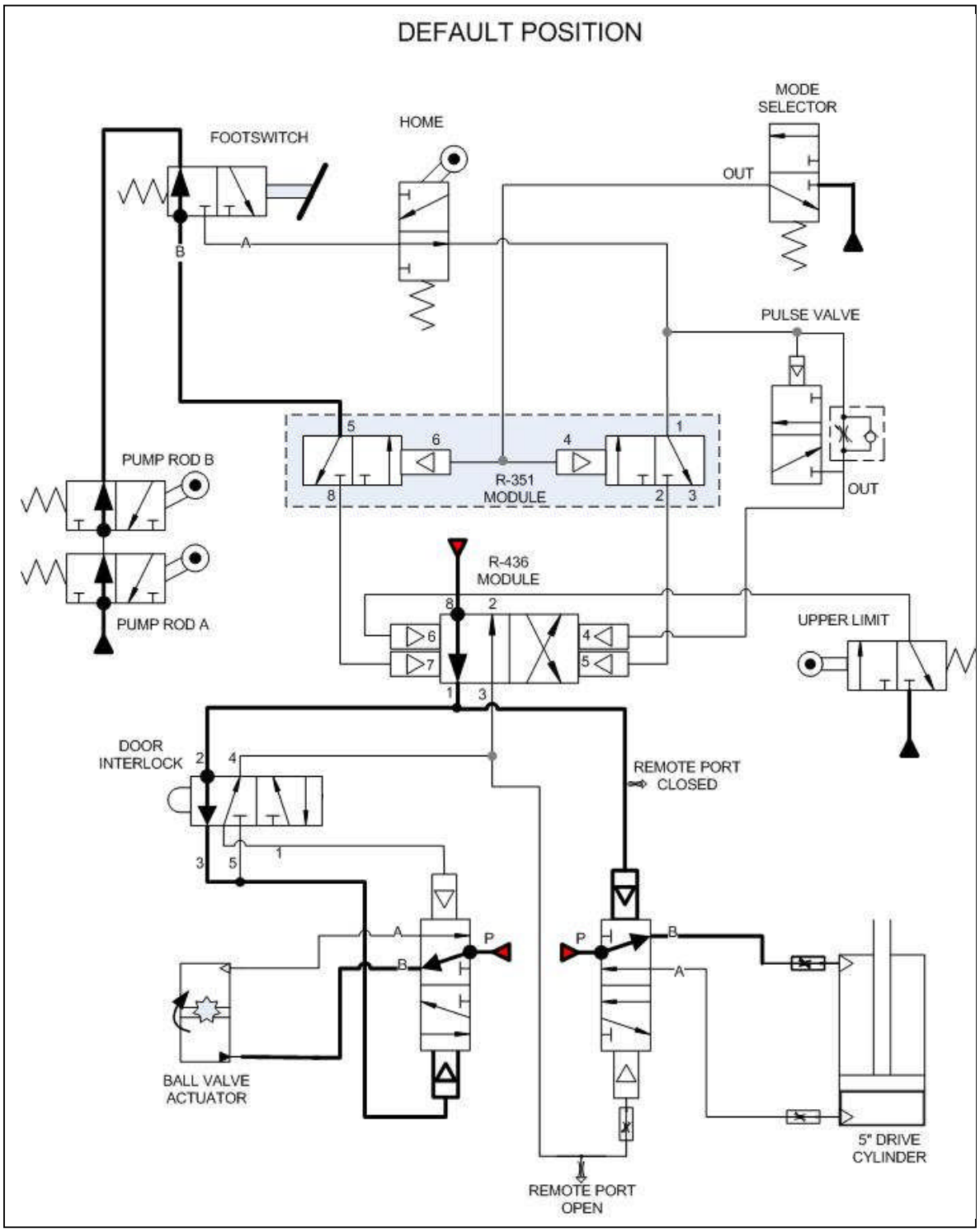
MIX BLOCK ASSEMBLY EXPLODED

C-8901168

ITEM	QTY.	DESCRIPTION	PART NUMBER
8	2	HEX HEAD PLUG 1/16 NPT, STAINLESS STEEL	8901110
7	1	RIGHT END CAP ASSEMBLY	8901207
6	1	MIX BLOCK	8901208
5	2	O-RING #2-013, PTFE	8901140
4	2	COMPRESSION SPRING, .240 OD X .024 WIRE X 3/4	8901141
3	2	BALL, 5/16 DIAMETER	8901142
2	1	LEFT END CAP ASSEMBLY	8901206
1	6	SOCKET HEAD CAP SCREW #8-32 X 1 1/8 LONG, STAINLESS STEEL	8901148

PARTS LIST

11 Pneumatic Diagram



12 Warranty

Henkel expressly warrants that all products referred to in this Instruction Manual for (Henkel DuraPump Meter Mix Dispense Systems) (hereafter called “Products”) shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, as its option, to replacing those Products which are shown to be defective in either materials or workmanship or to credit the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefor by the user). The purchaser’s sole and exclusive remedy for breach of warranty shall be such replacement or credit.

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No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

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